Strategy Research Project

DEFINING CRITERIA FOR HANDOVER TO CIVILIAN OFFICIALS IN RELIEF OPERATIONS

BY

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USAWC CLASS OF 2008

U.S. Army War College, Carlisle Barracks, PA 17013-5050

Report Documentation Page

Form Approved
OMB No. 0704-0188

1. REPORT DATE	2. REPORT TYPE	3. DATES COVERED
15 MAR 2008	**Strategy Research Project**	**00-00-2007 to 00-00-2008**

4. TITLE AND SUBTITLE	5a. CONTRACT NUMBER
Defining Criteria for Handover to Civilian Officials in Relief Operations	5b. GRANT NUMBER
	5c. PROGRAM ELEMENT NUMBER
6. AUTHOR(S)	5d. PROJECT NUMBER
John Bessler	5e. TASK NUMBER
	5f. WORK UNIT NUMBER
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES)	8. PERFORMING ORGANIZATION REPORT NUMBER
U.S. Army War College ,122 Forbes Ave.,Carlisle,PA,17013-5220	
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)	10. SPONSOR/MONITOR'S ACRONYM(S)
	11. SPONSOR/MONITOR'S REPORT NUMBER(S)

12. DISTRIBUTION/AVAILABILITY STATEMENT
Approved for public release; distribution unlimited

13. SUPPLEMENTARY NOTES

14. ABSTRACT
See attached

15. SUBJECT TERMS

16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT	18. NUMBER OF PAGES	19a. NAME OF RESPONSIBLE PERSON
a. REPORT	b. ABSTRACT	c. THIS PAGE			
unclassified	**unclassified**	**unclassified**	**Same as Report (SAR)**	**36**	

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USAWC STRATEGY RESEARCH PROJECT

DEFINING CRITERIA FOR HANDOVER TO CIVILIAN OFFICIALS IN RELIEF OPERATIONS

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This SRP is submitted in partial fulfillment of the requirements of the Master of Strategic Studies Degree. The U.S. Army War College is accredited by the Commission on Higher Education of the Middle States Association of Colleges and Schools, 3624 Market Street, Philadelphia, PA 19104, (215) 662-5606. The Commission on Higher Education is an institutional accrediting agency recognized by the U.S. Secretary of Education and the Council for Higher Education Accreditation.

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ABSTRACT

AUTHOR: Colonel John Bessler

TITLE: Defining Criteria for Handover to Civilian Officials in Relief Operations

FORMAT: Strategy Research Project

DATE: 12 February 2008 WORD COUNT: 7,849 PAGES: 36

KEY TERMS: Disaster Relief, Transition Criteria, Termination, Milestones, Relief Operations

CLASSIFICATION: Unclassified

The handoff of responsibility for relief operations from military to civilian control is a complex affair with few definitive guidelines. Department of Defense Directive (DoDD) 3000.05 directs that the military shall be prepared to accomplish 'all tasks necessary to establish or maintain order when civilians are unable to do so,' but the metrics which define success for these operations are ill-defined. Similarly, in a humanitarian relief effort, which shares many characteristics with stability operations, the criteria defining the endstate for the military's involvement and transition of responsibility to civilian control likewise remain ambiguous. This is critical because the number of relief operations, given global climate change and a burgeoning global population, will likely only increase, This paper will attempt to answer these questions by exploring several case studies from our recent past with varying degrees of inherent security issues: Hurricane Andrew, Hurricane Katrina and OPERATION UNIFIED ASSISTANCE, the 2005 Indonesian tsunami relief effort will be compared to determine what metrics were used to measure success and see if there is any correlation that can be used to draw a conclusion applicable to current and future domestic foreign relief operations.

DEFINING CRITERIA FOR HANDOVER TO CIVILIAN OFFICIALS IN RELIEF OPERATIONS

On 18 April 1906, an earthquake of 8.3 Richter magnitude struck along the San Andreas Fault near the city of San Francisco. The fire that resulted from the tremors was devastating. In a city of 400,000 people, the combination of the earthquake and fire left 550 dead, but the true magnitude was manifested in the 220,000 homeless and the total loss of the city's commercial industrial center. Federal relief efforts included mobilization of National Guard assets, but despite the magnitude of this disaster, after six weeks, the Guardsmen were demobilized and sent home, having accomplished all missions required to the satisfaction of the state and local officials. The key milestones associated with this withdrawal included, but were not limited to, the restoration of utilities outside the burned area, the closure of the missing persons' bureau, debris removal completed from the downtown area, resumption of retail trade, and stabilization of food lines.[1]

During this period, as in all disasters, normal social and economic activities ceased or were dramatically degraded: how long the emergency period lasts is generally a factor of the society's capacity to react and cope with a disaster. In the case of the San Francisco earthquake, the end of the emergency phase was characterized as when there was a generalized cessation of search and rescue, a restoration of law and order and feeling of security by the locals, a drastic reduction in emergency mass feeding and housing, and clearance of debris from principal arteries.[2] These milestones correlated with the National Guard's relief from responsibility to

civilian authorities, and could well serve as an example for disengagement criteria that might be useful for the relief efforts underway today.

The United States Army conducts full spectrum operations to accomplish its missions in both war and in operations other than war. Full spectrum operations include offensive, defensive, stability, and support operations.[3] Field Manual (FM) 3-07 defines "support operations" as those generally conducted in response to emergencies (natural or manmade disasters), and to relieve or reduce suffering. Support operations meet the immediate needs of civil authorities or designated groups for a limited time until they are able to accomplish those tasks without military assistance. FM 3-07 goes on to describe two categories of support operations: those which support domestic support operations (DSO), and those which support foreign humanitarian assistance (FHA),[4] which are those relief efforts in support of another nation. Disaster relief operations are further described as having three stages – response (roughly corresponding to the "emergency" phase described above), recovery, and restoration. The military's role is often most intense in the response stage, diminishing steadily as the operation moves into the recovery and restoration stages. Response operations normally focus on those life-sustaining functions required by the population in the disaster area. Recovery operations begin the process of returning the community infrastructure and the services to a status that satisfied the needs of the population. Military forces normally redeploy as operations transition from the response to the recovery stage.[5]

It is fair to say that as populations and global temperatures continue to rise, there will be increased competition for resources and opportunities for friction between and among nations. This increased competition will often end in conflict (and the

accompanying human suffering); global climate change will be responsible for an increasing number of natural disasters such as cyclones, hurricanes, and other natural disasters. Too often in these situations, the military forces of the United States are employed as they are often the most readily available, resourced, and capable entity which can alleviate suffering or offer aid. Fortunately, as the California earthquake vignette illustrates, the United States military has a long history of intervention into both disaster and humanitarian assistance as well assisting with post-conflict stability operations, with an accompanying abundance of doctrine to assist the planner and commander.

But what is often missing is the exit strategy – defining the metrics needed to transition the relief effort from one of primarily military control back to civilian control. In the past, no aspect of post-conflict operations has been more problematic for American military forces. While it is widely agreed that civilian and international organizations must assume those missions initially addressed by an intervening military as soon as possible,[6] defining the handover criteria varies from crisis to crisis. Particularly in disaster relief operations, the military is often asked to stay longer than practicable because the host nation or the people they are assisting feel that the military provides the only sure sense of security, dependability, and safety in a very traumatic situation, and a sense of reassurance that civil organizations are unable to provide at that particular moment. This is especially challenging when the disaster is of such a magnitude that the civil police force is absent and normal law and order begins to break down. In these situations, the military may have to 'wean' the civilians from the military

presence,[7] in order to enable the host government or civil authorities to reassert themselves as fully empowered.

The civilian spectrum with whom the military must interface is varied and challenging. Not only do commanders have to interface with the locally distressed civilians, but also with the informal neighborhood leaders and elected or paid officials from all levels – local, regional, state, and nationally. The military also interacts with personnel representing international relief organizations who may have been in the region for years prior to the military's arrival (if an overseas event), or whose lead elements often deploy nearly as rapidly as the military does, like USAID's Disaster Assistance Response Teams (DARTs).[8] The civilian view of the disaster, what needs to be done, what the civilians expect the military to provide, and even how the crisis and emerging tasks will be defined, may all be different from the military's view, and this difference must be hammered out in any relief effort's earliest days. Coordinating and cooperating with these different groups may prove to be one of the military's greatest challenges, and yet they may well prove to be among the greatest enablers, depending on how the military engages them. Because it is the civilians to whom the military will eventually leave the recovery and reconstruction tasks for completion, it is imperative they are engaged at the earliest opportunity.

The Joint Staff's publication 3-07-6, *Joint Tactics, Techniques, and Procedures for Foreign Humanitarian Assistance* describes criteria for termination or transition has being based on events, measures of effectiveness, availability of resources or some other metric. A successful harvest or critical facilities' restoration in the crisis area are examples of events that might trigger mission termination. An acceptable drop in

mortality rates, a certain percentage of dislocated civilians returned to their homes, or a marked decrease in requests for support are statistical criteria that may prompt the end of US forces' involvement. When other organizations, such as Office of Foreign Disaster Assistance (OFDA), the United Nations, Red Cross, or other nongovernmental organizations, have marshaled the necessary capabilities to assume the mission, US forces may execute a transition plan.[9] Because these organizations are largely civilian agencies with less ability to mobilize rapidly, the military normally remains in place until these organizations have sufficient capacity to relieve the military of these duties. JP 3-08 provides an excellent checklist for planners to use when the need to coordinate with local, regional, national, and international NGOs arises. While it is not a list of discrete tasks, it is a good resource to guide planners and commanders in developing a list of transition tasks appropriate to the relief effort to which they are deployed.[10]

The Department of Defense must become better prepared to execute these missions, for it is clear that relief operations are here to stay. It is urgent that the military define a set of metrics by which to determine handover criteria from military to civilian control in these sorts of operations. To that end, this paper offers three models by which commanders can define their exit metrics. These three models are referred to as Negotiated Conditions, Objective Conditions, and Requests for Assistance/ Tracking Capacity.

The Negotiated Conditions model occurs when a relief effort's military staff very early on in a crisis closely interacts with civil officials as well as civilian humanitarian efforts to determine a coordinated response to the crisis, and jointly determine the exit timeline and milestones. This may be the most common model when there is an

‘anticipated’ disaster – such as a hurricane or typhoon landfall. Enough lead time must exist to ensure a rapid linkup between civilian officials with access to decision makers (such as FEMA or USAID) and the arriving military.

When the amount of destruction is very great, very rapid, or when the damage is of such a scope as to overwhelm the civilian officials’ ability to anticipate or cope, Objective Conditions may be an option. Objective Conditions are a known set of parameters by which a military staff tracks progress in a relief scenario where the disaster’s true magnitude and requirements are unknown or ambiguous. During relief planning, staffs use pre-determined metrics to monitor progress, shift effort, and gauge the relief efforts progress. These predetermined criteria normally are modified to fit the particular situation, and can change throughout the operation itself. Usually in situations where Objective Conditions are used, the military takes the lead until civilian authorities are able to contribute to the situation.

Finally, the Requests for Assistance (RFAs)/ Tracking Capacity model refers to a two-fold staff tracking mechanism. An RFA is a request for support or assistance; this can be either a commodity (such as water or medical supplies), or a service (such as transportation or medical evacuation). RFAs are normally made to the military relief operation’s representatives by a local civilian, official, or relief worker. In this model, military planners and civilian representatives (such as from USAID or the Red Cross) jointly monitor how many RFAs are received, prioritized, and addressed across the various regions within a given area over time. As RFAs diminish in various areas, the staff develops some minimum threshold below which military effort will be shifted elsewhere or terminated. Tracking Capacity is a tool which monitors the growing

capacity of other relief agencies arriving in the area of operations (NGOs, IGOs, as well as reconstituted local, state, and national agencies) until the commander deems withdrawal conditions have been met.

This paper will use three distinct relief operations to illustrate each of these models, and to determine what other parallels exist for transition. First, this paper will review both joint and service doctrine associated with relief operations and explore the similarities between domestic support operations and foreign humanitarian assistance operations. Next, it will review two cases studies involving U.S. military intervention into domestic disaster assistance: 1992's Hurricane Andrew, which until 2005 was the costliest hurricane in U.S. history, causing nearly 25 billion dollars in damages and destroying over 25,000 homes, and Hurricane Katrina, easily the largest domestic disaster of our nation's history,[11] for any parallels. Next, this paper will review military involvement in a permissive overseas operation, OPERATION UNIFIED ASSISTANCE, the U.S. intervention to assist the victims of the 2005 Indonesia tsunami, in which over 225,000 people were killed. Finally, this paper will attempt to draw some conclusions and recommendations for the future, as disaster relief, most assuredly and most unfortunately, will only continue to be a growth industry.

Doctrine

In Army doctrine, FM 3-07 describes relief operations as a form of support operation.[12] These operations assist civil authorities in response to either manmade or natural disasters, and seek to relieve or reduce suffering, meeting the immediate needs of civil authorities for a limited time until the civil authorities are once again capable of accomplishing those tasks. The two types of support operations described in FM 3-07

are domestic support operations (DSO) and Foreign Humanitarian Assistance (FHA). DSO supplements the efforts of the United States' civil governments, and in these cases the Army normally responds in support of another federal agency such as FEMA. FHA operations, on the other hand, employ military forces to supplement the efforts of a foreign government's civil authorities or agencies. Both DSO and FHA are limited in scope and duration.[13]

In doctrine, security is identified as an activity common to both types of relief operations.[14] Both domestically and overseas, providing a safe and secure environment for the local population as well as the relief workers is critical to success. In this paper, it will become evident that before the military transitions out of sector, security is absolutely an essential element before true progress is made. In the case of DSO, DOD Directive 3025.12 contains guidance concerning the use of military assets during civil disturbances. Federal Army forces can be authorized to assist civil authorities restore law and order when the magnitude of the disturbance exceeds the capabilities of local and state law enforcement agencies, including the National Guard.[15] The Army helps civil authorities restore law and order when state and local law enforcement agencies cannot control civil disturbances.

In FHA, security is also a significant consideration. Whether the environment is permissive, uncertain, or hostile will determine the amount of security forces applied. In a permissive environment, this may be nothing more than enough forces to prevent desperate populations from overrunning distribution points. The fact remains that there is a security aspect to both types of support operations, if only to allow civilian agencies

to operate safely and uninhibited from either the population being helped on the one hand, or hostile forces on the other.[16]

Exacerbating this is the dynamic that different sectors of a neighborhood, county, province or country will recover or transition at different rates. This means that the military cannot simply pull out in a single day, but must gradually contract its footprint and phase itself out; this too must be a part of the initial planning. This may not be a long process, as in the case of the Indonesian tsunami relief; on the other hand, it can often be quite a prolonged presence. An excellent illustration can be found in New Orleans where, three years after Katrina, National Guard troops continue to bolster New Orleans' hurricane-depleted police force, while the city and its police force have worked to bounce back from Hurricane Katrina and clamp down on violent crime.[17] Without security for both relief workers and citizens, the move from emergency to recovery cannot move forward.

The Dynamics of Intervention

Turning to termination criteria in doctrine, the importance of termination of operations is highlighted in JP 5-0 (Joint Operations Planning). JP 5-0 states that termination is discussed first among the elements of operational design because effective planning cannot occur without a clear understanding of the end state and the conditions that must exist to end military operations. In order to do this, the Joint Force commander must define the conditions of the 'stabilize' and 'enable civil authority' phases.[18] History is replete with examples of ill-defined conditions for 'stabilize,' 'turnover to civilian control,' or an end state that becomes a moving target – a situation the military colloquially describes as 'mission creep.'

A critical dynamic to bear in mind is that the deployment of ground forces into any region (at home or abroad) and the approach they take to the local population will immediately affect the population's daily life, perceptions, and politics – for better or worse, depending on the viewpoint of the inhabitants.[19] Ignoring this may have negative effects, not the least of which might be a loss of legitimacy – however temporary - of the local government in the eyes of the local populace. If the relief forces are viewed as able to provide more and better services, including the establishment of an environment relatively free from looting, vandalism, or crime, then one of the unintended consequences of the military's presence might very well be a growing reluctance on the part of the relief efforts' targeted population to return to their normal civil authorities during the recovery phase.

Another major challenge facing relief effort commanders is the relationship required between their headquarters and civilians responding to the disaster or crisis. There are three groups of civilians in any relief effort: the populace being assisted; NGOs and other private organizations, and the local, regional, and federal officials of the U.S. government and host nation. Technical and cultural differences aside, the civilian vision of the end state (and the tasks required to get there), may be vastly different than that of the military – even amongst themselves! Understanding the expectations and capabilities of all parties, is a critical element, and in fact affects all three transition models discussed in this paper. As JP 3-08 (Department of Defense, Interagency, Intergovernmental Coordination During Joint Operations, Vol I) states, as the civilians will be engaged long after the military have pulled out, it is also essential to

understand the differences in interpretation between the military and the civilian end state and transition criteria.[20]

Turning to operational design, current joint doctrine describes operational termination as so critical to success that it is the first thing to be determined when planning an operation. Knowing when to terminate military operations and how to preserve advantages is crucial to achieving the strategic end state.[21] According to JP 3-07.6, two of the three most critical functions that a Joint Force Commander (JFC) must accomplish early in the planning process are to ascertain and articulate a clearly identifiable end state, and transition or termination criteria for the operation.[22] The Joint Warfighting Center's Joint Task Force Commander's Handbook for Peace Operations notes that "transitions may involve the transfer of certain responsibilities to nonmilitary civil agencies, but that transitions in peace operations have no clear division between combat and peacetime activities, they lack definable timetables for transferring responsibilities, and are often conducted in a fluid and increasingly political environment",[23] thus codifying in doctrine the difficulty and ambiguity of relief operations.

In any relief effort, the military's role is normally associated with maintaining or restoring essential services and activities to mitigate damage, loss, hardship or suffering. In DSO, long-term relief is primarily a state and local responsibility; for FHA, a national responsibility. FM 3-07 acknowledges that there is no discrete menu of tasks or metrics by which a commander involved in such an operation can use to measure his success;[24] these must be developed on the ground.

In response to an emergency, however, FM 3.07 does focus relief tasks on lifesaving measures to alleviate the immediate needs of a population in crisis, including

security and the provision of medical support, food, water, medicines, clothing, blankets and shelter. In some cases it involves transportation support to move affected people from a disaster area to areas with more infrastructure or security. Relief operations also involve the restoration of minimal infrastructure and create the conditions needed for longer-term recovery, and include establishing and maintaining the minimum safe working conditions needed to protect relief workers and the affected population. They may also involve repairing or demolishing damaged structures, restoring or building bridges, roads, and airfields, and removing debris from critical supply routes and relief sites,[25] although unless repairing major structures is essential to life-saving activities (like a destroyed bridge to reconnect a population center with medical facilities), major repair and restoration tasks normally are relegated to the reconstruction phase. In the absence of more concrete guidance, this list could well serve as the baseline for transition tasks. The ultimate aim is to transition relief functions to civilian organizations as rapidly and efficiently as possible.

Policy and Resources

Recognizing the increasing likelihood of troop deployments for humanitarian assistance since the end of the Cold War, both the 1997 President's National Security Strategy (NSS) and the Quadrennial Defense Review described military intervention into humanitarian assistance operations as both necessary and expected.[26] In these documents, it is clearly the President's vision that relief operations should be of limited duration and designed to give the local authorities the breathing room and opportunity to put their own house in order as a requirement before withdrawing troops.[27]

The office most engaged with foreign relief today is the United States Agency for International Development (USAID)'s Office of Foreign Disaster Assistance (OFDA). OFDA provides humanitarian assistance to save lives, alleviate human suffering, and reduce the social and economic impact of humanitarian emergencies around the world.[28] OFDA only responds to a foreign crisis when the U.S. Ambassador or Chief of Mission in an affected country has declared an emergency. In addition to providing relief commodities when responding to natural disasters or civil conflict, OFDA often fields response teams to assess, report, coordinate, and enable relief supplies and relief efforts from both international aid organizations and the host nation.[29] The OFDA Field Operations Guide (FOG,) is issued to team leaders deploying to disaster areas. It provides information on OFDA responsibilities, reference materials, checklists, lists of available commodities, and general information on disaster activities, to include working with U.S. military forces responding to the crisis. The FOG has even been cross-referenced with Sphere guidelines (described below), but what is missing from the FOG is any guidance for an exit strategy.[30]

Most recently, President Bush directed the formation of the Department of State's new Office of the Coordinator for Reconstruction and Stabilization (S/CRS). This office's purpose is to address longstanding concerns over what is seen as inadequate planning mechanisms for stabilization and reconstruction operations overseas, a lack of interagency coordination in carrying out such tasks, and inappropriate capabilities of many of the non-military tasks required.[31] Developed for post-conflict operations, it nevertheless provides a robust source of information that can be applied to relief operations, as many of the same tasks in post-conflict scenarios are concomitant with

relief operations. This office has developed a menu of literally hundreds of 'essential tasks' that can be used to define metrics. Commanders can use this list as a menu from which to choose the metrics for successful transition, and it provides a ready resource for military headquarters deployed, for either a stability operation or a relief operation.

The NGO community's Sphere Project was launched in 1997 by a group of humanitarian NGOs and the Red Cross and Red Crescent movement in order to better codify relief requirements and standards, collating input from over 220 relief organizations. Recently, this organization published a handbook to assist the relief workers community in determining the metrics of success during intervention.[32] The Sphere Project's standards generally address water supply, hygiene, sanitation, food, shelter, and health issues as minimum standards. However, there are conflicting opinions as to the applicability of the Sphere Project standards' use in disaster relief operations: the standards are focused on relief camps, not a devastated area; politicians can use the standards to obscure the underlying causes of the misery (if other than a natural act), and the standards listed may not apply in cases where the normal living conditions were below the standards expected in the Project before the disaster.[33] Moreover, the overwhelming lists of tasks, while a good reference for relief leaders to use in asking the right questions about quality of life standards, it is so exhaustive and detailed that contemporary use by the military in developing measures of effectiveness is limited.[34]

It is obvious that much work has been done to compile lists of tasks for relief workers to accomplish and standards towards which to strive. The reality is that each

new relief effort is unique in its scope and challenges. Commanders and planners have at their disposal both the guidelines and doctrine described above as well as tools from the State Department, international relief organizations, joint and Army doctrine, and their own experiences to develop metrics and tools by which to identify and effect tactical and operational transition to civil authorities during relief operations. This paper now reviews three disaster relief operations, two at home and one abroad, as models to determine the conditions and criteria used to transition from military to civilian control.

Hurricane Andrew

Until Katrina, Hurricane Andrew was the most economically devastating natural disaster to hit the United States, making landfall on 24 August 1992 south of Miami, Florida, and again on 26 August near Morgan City, Louisiana. The President declared a major disaster in both areas, authorizing federal relief effort. 2nd U.S. Army established JTF Andrew on 27 August, which ultimately involved over 24,000 service members.[35] The JTF's mission was to provide humanitarian support, reflected in the key tasks of the commander's intent: "immediately begin to operate feeding and water facilities; provide assistance to other (local, state, and Federal) agencies in the receipt, storage, and distribution of relief supplies, with an end state to get life support systems in place and relieve initial hardships until non-DoD, State and local agencies can reestablish normal operations throughout the area of operations."[36] The commander's intent nicely captures what are now termed "immediate response guidelines," which are outlined in the latest version of FM 3-07.[37]

Immediate response allows on-scene commanders and those ordered to support relief efforts to assist in the rescue, evacuation, and emergency medical treatment of

casualties, the maintenance or restoration of emergency medical capabilities, and the safeguarding of public health. Tasks may also include fire fighting, water, communications, transportation, power, and fuel, and the clearance of debris, rubble and explosive ordnance from public facilities to permit rescue or movement of people and restoration of essential services.[38]

Among JTF Andrew's primary operational military objectives and challenges was the ability to create the conditions for making the communities an integral part of the recovery process, enabling them; in other words, to facilitate the return to normalcy. Responding to the commander's intent and key tasks, the rapid initial response of the JTF focused on five critical areas of emergency services: providing food and water, shelter, sanitation, medial supplies and services, and transportation, with the objective of easing the suffering.[39] Essentially deployed to ensure that local residents had access to life-saving measures and means, the JTF provided much-needed relief in these areas, and was generally hailed as a success by both local and state authorities, as well as the media.[40]

The early establishment of a strong working relationship between the military and the lead federal agency (FEMA) was effected by 2nd U.S. Army, when they appointed a Defense Coordinating Officer (DCO) to serve as liaison between DOD and FEMA. This officer established contact with FEMA on 23 August – before Andrew made landfall – and by the time the JTF was established four days later, many of the requirements were outlined, relationships were built, and much of the structure in place. This early cooperation persisted throughout the mission, and was a force multiplier as the JTF took control.[41]

Despite the lack of specific transition criteria, the interface between the JTF staff and FEMA was excellent. This relationship enabled both the military and the civilian authorities to recognize the need for measuring the success of operations; namely, the capacity of state and local governments to shoulder the burden to provide essential public services, specifically sanitation, water, power, and emergency rescue and medical support.[42] Early interface with local and regional officials led to a list of key milestones that both parties agreed to. This enabled the JTF to work towards a civil-authority endorsed list of tasks which, when accomplished, signaled mission complete. This enabled the JTF to withdraw after approximately 20 days, when the key milestone of 'schools reopened' was met. However, at least one major after action report comment indicated a critical lack of criteria for mission accomplishment at the outset: "When should forces be released from continuing recovery or reconstitution work? There is no guidance when the military portion of disaster response should end."[43] While this question was unanswerable at the time of alert, the JTF staff was able to quickly capitalize on frequent and routine interaction with on-scene civilian officials and agree upon transition criteria soon after the JTF arrived. The use of "negotiated conditions" to determine transition milestones, hammered out with the civil authorities, is a technique to consider in the future when the just-alerted commander may only have a writ to provide "immediate response," and little else to go on. Without collaborating and cooperating with governmental officials to jointly determine milestones for transition, clearly-defined and tangible exit metrics will remain elusive.

Hurricane Katrina

Although still being assessed, the damage wrought by Hurricane Katrina was unprecedented in scope in the United States: over a million people displaced, 1,300 fatalities, and economic damage estimated at nearly 200 billion dollars. The federal disaster declarations covered an area of the United States roughly the size of the United Kingdom, and over five million people were without power, some for weeks.[44]

The federal response was equally massive, ultimately bringing nearly 25,000 active and 50,000 National Guardsmen, 200 aircraft, and 20 ships to bear on the affected states of Louisiana, Mississippi, and parts of Texas. The DOD contributed substantial support to state and local authorities, including search and rescue, evacuation assistance, provision of supplies, damage assessments assets, and assisted in some areas with public safety.[45]

Subordinate to the JTF, the 82nd Airborne and portions of the 24th Marine Expeditionary Unit (MEU) from Camp Lejeune, North Carolina, spent three weeks in Louisiana, Mississippi and Texas as part of Joint Task Force Katrina, working with local, state and federal disaster-response agencies to help victims of Hurricane Katrina and then Hurricane Rita.[46] JTF Katrina used the military primarily for rescue operations, security operations, medical support, clearing debris and opening traffic arteries to enable local, state, and Federal officials and organizations to deliver critical supplies. The National Guard was used in law enforcement operations when necessary, given their Title 32 status. This was particularly critical when over two thirds of New Orleans' police force failed to show up for work, either because their own homes were devastated, traffic arteries were closed or flooded, or because it was simply too dangerous a place to work in the storm's immediate aftermath.[47] In fact, there are still

National Guardsmen today still patrolling some parts of New Orleans, three years after the fact.[48]

According to the United States Army Center for Lessons Learned (CALL) database regarding DoD's Hurricane Katrina response, the overarching purpose established by the president and JTF commanders at all levels was to empower parish (local or county) governments to rebuild their communities – not to do it all for them. For the JTF, the critical issue was restoring capacity (such as emergency medical services, clean water availability and critical traffic route opening) so the local and state agencies could help themselves. CALL captured that in order to do this, the JTF outlined six key tasks. First, influencing the local government and public service agencies to accept a leading role in the rebuilding efforts; second, influencing the federal government (through FEMA) to target resources towards those parishes most in need; third, to connect local leaders with the resources available to them and assist them establishing relationships with the proper agencies; fourth, influencing media to highlight the plight and rebuilding efforts of these parishes. The fifth key task was to directly assist local populace with short term, high-impact civil-military engineering projects, and finally, to assist local officials in developing a transition plan which allowed for continuing long term solutions.[49] This provides a second model for establishing metrics for transition – that of a set of objective conditions. This set of six tasks provides an excellent alternative model for how to determine transition criteria and glide path during relief operations that has great potential for future use.

These operational tasks were implemented by the JTF and federal entities with varying results initially, based on the workers' understanding, and the different

magnitude of damage sustained by different communities. For the most part, the tactical execution of tasks centered around those normally associated with disaster relief: rescue, water and food distribution, sanitation, and emergency shelter, and debris removal. Once these six tasks were adequately addressed, military and civilian officials were able to look ahead to longer term recovery.[50]

Situations improved at different rates in different parts of the disaster area. In some areas, as conditions improved in their area of operation, a new dynamic emerged in that troops had to 'wean' the local population, government, and economy from the relief effort's resources. While in most cases the turnover to civilian relief agencies went smoothly, in several areas the actual return to the civilian sector was frequently met with extreme reticence by the local officials and citizens who, after the trauma and aftermath of this catastrophe, did not feel secure in the military's departure.[51] Moreover, in many cases during the Katrina relief efforts, small unit leaders felt significant pressure during the drawdown to continue support due to their direct relationship with the population, despite the need being greater in other areas.[52] In short, the citizenry in several parishes and neighborhoods had lost faith in their local and regional elected officials, and until that was restored, the announcement of the military's impending departure was not happily received. Perhaps a more visible presence by local officials – neighborhood, local, and parish leaders – earlier in the relief operation, coupled with "progress reports" by the military (highlighting milestones and progress by the civil-military team) might alleviate some of the populace's angst. A good technique might have been employing such a strategic communications plan to address the upcoming departure of military resources from various areas.

To be sure, the turnover to civilian relief agencies must be collaboratively predetermined, anticipated, briefed, tracked, phased, programmed, and briefed to the public, in conjunction with relief agencies and the local leaders. Resources projected for release in one area might be diverted to more remote or harder hit areas, based on a collaborative relationship among the military, civilian relief, and local officials. This relationship must be established at the earliest opportunity. In the absence of a proactive civil-military relationship, a model such as Objective Criteria served JTF Katrina well. In the wake of a crisis so devastating that the civilian response was slow to realize its enormity, Objective Criteria enabled the JTF to work towards a transition until such time as the local, state, and federal authorities were capable of assuming a more robust role.

Tsunami Relief

At 7:38 am local time, 26 December, 2004, a 9.15-magnitude earthquake struck off the west coast of the Indonesian island of Sumatra. It was rapidly followed by fifteen smaller earth quakes across the region. Altogether these seismic events lasted for ten minutes and produced several massive tsunamis. The height of the individual tsunamis differed radically from area to area, depending on the direction the shoreline faced and the depths of the surrounding waters. Along the coastlines of Thailand and Sumatra, some waves reached over thirty feet in height, though most were half that height, and many areas received more than one wave. Many people who survived a first wave assumed that the worst had passed, only to be swept away by a second, often larger wave that arrived a few minutes later. By the end of this disaster, over 225,000 people were declared dead or missing, entire towns and villages had totally vanished, and the

shorelines of northwestern Indonesia and other affected countries were permanently altered.[53]

Within 72 hours of the disaster, the U.S. Navy had established JTF 536 at Utapao, Thailand,[54] and also established three Combined Support Forces (CSFs), one in support of each of the three hardest-hit countries: Sri Lanka, Thailand, and Indonesia. This heralded the opening of OPERATION UNIFIED ASSISTANCE. Essentially a naval force from the 7th Fleet augmented by teams from USAID, and soon joined by Australia, Japan, and Singapore, this force worked to assist the governments of the hardest-hit countries, conducting search and rescue, delivering supplies, and providing medical support. While international relief agencies arrived and supplies began pouring in, other countries provided medical teams and other support. However, when the U.S. offered assistance in the first few days following the tsunami, the Indonesian Government reluctantly accepted that support, but with one major caveat: that U.S. forces would maintain a minimal footprint ashore, and that all U.S. personnel be withdrawn before the first of March.[55] In adhering to this request, the U.S. remained committed for just under two months.

The JTF's goals as a humanitarian mission ultimately revolved around providing search and rescue, life-sustaining water, food, and medicines to the survivors. The JTF also provided damage surveys, cleared debris from key locations and assisted in organizing relief packages from those supplies, finally withdrawing all military personnel by 23 February 2005.[56] Throughout the mission, U.S. Naval commanders were constrained not only by the Indonesian government's caveat on accepting assistance

with a hard end date limiting the relief effort, but by U.S.-imposed force-protection measures which required all U.S. personnel to be offshore by sundown each day. [57]

The hard date set by the Indonesian government made it easy for the CSF planners to develop a transition mindset, as it forced them to consider transition tasks beginning on 02 January, before support vessels had fully closed into the area of operation.[58] Despite this, the sheer scope and totality of the devastation made it initially difficult to determine what assistance was needed, in what capacity, and when that assistance was no longer needed. Joint Publication 3-57, *Doctrine for Joint Civil Affairs*, states that transitions should occur when "the mission has been accomplished" or when the President and Secretary of Defense so direct. But in this case, defining "mission accomplished" would be a tough nut to crack,[59] if for no other reason than the totality of the devastation.

USAID advance representatives flowed into the area along with the Navy, and quickly formed civil-military teams with the JTF and the CSFs.[60] Other private organizations, some already in country before the tsunami, greeted the JTF as it closed. In discussing the end state for operations in the region, more than one recommended that Navy planners use the International Red Cross' Sphere Standards of Habitation Environments as the desired outcomes for each country. However, the civil military teams of USAID representatives and Navy planners decided these standards were not feasible in this scenario, as the standard of living in the region before the disaster was in many cases lower than the Sphere standards before the disaster. For this reason, as well as the sheer exhaustive nature of the Sphere list, planners and USAID team

members together discarded the Sphere Project standards as they searched for appropriate transition criteria.[61]

The USAID-Navy team eventually developed a system whereby they tracked requests for assistance (RFAs) from various areas. Since a declining number would seem to indicate less need for military assistance, Lieutenant General Blackmon, the Combined Support Force (CSF) commander settled on tracking the number of RFAs to determine his glide path.[62] These RFAs were developed by the JTF-USAID civil-military team, and used throughout the operation to validate, coordinate, and prioritize requests for assistance from international relief agents and local officials ashore. [63] Afloat with the Navy, USAID's military liaisons (MLOs) helped the military track the volume, type, destination and closure of RFAs, which greatly enhancing the coordinated civil-military effort.

During the six weeks of the Navy's involvement, more and more relief organizations, international support, and host country abilities continued to grow. To develop principles to guide the impending transition, the CSG Commander directed the military footprint to slowly shrink when RFAs for military assistance decreased or were passed to aid agencies.[64] To help visualize the glide path towards their own eventual withdrawal, the JTF used four capabilities-based categories of conditions for transition. The staff was ordered to track the capacity of non-CSF organizations as those organizations expanded their footprint in country and became capable of accomplishing: Coordination (essentially Command and Control – how capable they were in coordinating continued relief); Health Services (how capable they were in providing disease control measures); Engineering (capacity to provide basic sanitation, water, and

engineering support); and Transportation (capacity for water distribution, in-country as well as inter-country delivery of supplies.[65]) This clearly-understood, capabilities-based glide path, coupled with the RFA tracking system, provided a simple, clear solution for visualizing the metrics for transition and are a great model for future relief efforts.

The JTF's technique of tracking RFAs provided another successful approach towards identifying when to transition a relief mission to civilian control. The idea to define a transition horizon in terms of a minimum threshold in requests for assistance worked exceptionally well in this case. Developing this RFA list with USAID partners, coupled with an 'exit strategy outlook' from the very beginning enabled the JTF to anticipate transition in time to effectively plan for it. Tracking the growing capacity of incoming relief organizations and a strong relationship with USAID, NGOs and local officials also illustrates a successful model for effective transition to civilian control.

Decisive Activities

This paper reinforces the current doctrine which identifies three essential activities as decisive to successful relief operations. These activities are: ensuring security, restoration of essential services (collectively defined in this paper as immediate life saving, access to potable water and food, basic sanitation, and access to medical facilities, at a minimum), and early interaction between the on-site military commander and civilian officials. These three elements are absolutely critical to success and are found in every successful relief effort.

Security must be achieved before services can be reliably restored - indeed, 'establishing security' should be the first of all 'essential services.' Essential services are those elements of basic life support required to protect human life and safeguard

public health – emergency rescue and emergency medical treatment, clean water, food, shelter, access to medical services, and clearance of debris from major arteries in order to access remote areas. Finally, a collaborative and cooperative effort to merge military-civilian planning and coordination to develop and track milestones towards transition must be achieved. Above all, remain mindful that the end of military operations does not mean the end of relief operations; it only means that civilians are in control. The NGOs, the Red Cross, and other relief organizations are in most regions, on the ground long before the military shows up, and will normally be there long after the military departs. In all successful relief efforts, this triad of tasks must be addressed before any military effort can withdraw, regardless of a domestic or overseas operation.

Transition Models

Using these decisive activities as a backdrop, the commander must either choose or develop a mission- and situation-specific model by which he can measure success and determine the exit point along the glide path to disengagement. This paper identified three distinct models by which a relief effort commander and his staff can attack the problem of determining metrics for transition. The three models identified are Negotiated Conditions (whereby a staff jointly determines with local officials and NGOs what the exit milestones are); Objective Conditions (a known set of parameters by which a staff tracks progress in a relief scenario); and Requests for Assistance/ Tracking Capacity, a tracking mechanism by which a staff develops minimum thresholds of activity across multiple supply and relief activities by which to gauge withdrawal.

Negotiated Conditions appears to work well in situations where local governmental and relief officials are willing to interact with military staffs deployed to assist.

Establishing a positive civil-military relationship as soon as possible and developing a true interagency approach at all levels clearly enhances the relief effort's results. However, this model will be difficult to use if the staff is unfamiliar or unwilling with dealing with civilians, it opts for a 'we-they' approach, or the staff does not organize effectively to deal with the myriad of civilian agencies (local, federal, NGO) who will likely flood the headquarters. The commander must effectively organize his staff to receive and interact with the civilians in any event, regardless of the model chosen.

The Objective Conditions model may be an alternative when the scope of the devastation, the amount of relief, and/or relief agencies' and officials' response is slowed due to inaccurate early reporting, a failure to recognize the magnitude of the disaster, or the civilian agencies are incapable of productively assisting. Establishing critical and objective conditions as broad guidance to subordinates is an effective technique by which to visualize what is required for transition. However, these broad conditions must at some point be carefully dissected into discrete tasks or the actual military forces interfacing with the populace may waste effort in areas or activities not concomitant with higher headquarters' intent. Nesting intents to the lowest level is one way to avoid this. Finally, ensure a strong strategic communications plan exists to empower the civilian agencies and officials as soon as possible, while aggressively seeking to build an effective civil-military relationship at the earliest opportunity.

Requests for Assistance/ Tracking Capacity is a third model which can enable a JTF to successfully meet its objectives. RFAs are easily tracked by a headquarters, and it is a fairly simple way to illustrate to officials and commanders the progress being made in various areas. The RFA versus Sphere Standards debate offers an important

lesson learned: military staffs should avoid building overly-detailed lists for humanitarian relief. Keeping the list quantifiable, developed in conjunction with local and regional government officials and with NGOs, and vetted through relief experts such as USAID MLOs, provided a more realistic and attainable transition framework, regardless of the actual tasks. Perhaps most importantly, it is incumbent on all involved to ensure the civil-military linkage is strong. It is imperative that a collaborative effort be made to identify the disengagement glide path, as civilian officials and NGOs have differing perspectives as to when they are able to continue relief operations with little or no loss of tempo. Tracking Capacity is a useful way to quantify how capable arriving enablers are, but these must be specific. If too general, they will not convey an accurate picture to the commander.

Admittedly, the most difficult part of any relief operation after defining the mission is defining when to transition to civil authorities. While there are no easy solutions, it is clear that remaining mindful of security issues, restoring essential services, and early collaboration and coordination with civilian agencies are critical to success. Maximizing the expertise of USAID representatives as well as NGOs, local, state, and national officials to develop metrics and milestones, aggressively looking for transition criteria early in the process that can track a glide path to transition, and remaining mindful of the mission to stop the dying and ease the suffering, are perhaps the most important multipliers to employ.

Whether using Objective Criteria, Negotiated Criteria, or RFAs/ Tracking Capacity, at the point of the spear, those with boots on the ground are truly the key to a successful relief effort. Never have those men and women who are on the spear's point

failed us. As we look to the future, commanders and staffs of potential relief operations must remain mindful of the decisive triad, the models available to ensure successful transition, and the complexities and the ambiguities that will confront them. Few operations are as complex as a relief effort; and everyone involved always looks to the military as the lead at the outset. We owe it to everyone involved to think through these concepts and be ready for when disaster next strikes.

Endnotes

[1] J. Eugene Hass, Robert W. Kates, and Martyn J, Bowden, eds*., Reconstruction Following Disaster* (Cambridge, Massachusetts: The MIT Press,1977), 5.

[2] Ibid, 3.

[3] U.S. Department of the Army, *Stability Operations and Support Operations*, Army Field Manual 3-07 (Washington, D.C.: U.S. Department of the Army, February 2003), 1-1.

[4] Ibid., 1-6.

[5] Ibid., 6-12.

[6] Conrad C. Crane and W. Andrew Terrill, *Reconstructing Iraq: Insights, Challenges, and Missions for Military Forces in a Post-Conflict Scenario*, Strategic Studies Institute Monograph, (Carlisle Barracks, PA, February 2003), 43.

[7] United States Army Center for Army Lessons Learned, "Disaster Response, Hurricanes Katrina and Rita, Initial Impressions Report, # 06-11," (U.S. Army Center for Army Lessons Learned (CALL), 10 Meade Ave, Fort Leavenworth, KS 66027, February 2006,) 89.

[8] USAID Speeches: "Briefing on Humanitarian Assistance To Iraqis in the Event of War," 25 February 2003, available from http://www.usaid.gov/press/speeches/2003/sp030225.html; Internet; accessed 14 February 2008.

[9] Department of Defense, *Joint Tactics, Techniques, and Procedures for Foreign Humanitarian Assistance*, JP 3.07-6, (Washington, D.C., The Joint Staff, 15 August 2001), IV-22.

[10] JP 3-08, III-12.

[11] Hurricane Andrew, August 16-28, 1992, linked from *Satellite Hurricane Observations, Coastal Hurricane Impacts* at "1992, ANDREW", available from http://www.csc.noaa.gov/crs/cohab/hurricane/hurr_imp.html; Internet, accessed 08 December 2007

[12] FM 3-07, 6-1.

[13] Ibid., 1-6.

[14] Ibid., 6-3.

[15] Ibid., 6-21.

[16] U.S. Department of the Army, *Civil Affairs Operations*, Army Field Manual 3-05.40 (Washington, D.C.: U.S. Department of the Army, 29 September 2006), 3-7.

[17] New York Times, Louisiana: Extension of Guard Watch in New Orleans; Associated Press, January 10, 2008.

[18] Ibid., I-19.

[19] U.S. Department of the Army, *The Army*, Army Field Manual 1 (Washington, D.C.: U.S. department of the Army, 14 June 2005), 3-9.

[20] Department of Defense, *Interagency, Intergovernmental, and Nongovernmental Organization Coordination During Joint Operations*, Joint Publication 3-08 Vol I, (Washington, D.C., The Joint Staff, 17 March 2006), 9.

[21] Department of Defense, *Joint Operational Planning*, Joint Publication 5.0, (Washington, D.C., The Joint Staff, 26 December 2006), IV-5.

[22] JP 3.07-6, I-9.

[23] The Joint Warfighting Center, *JTF Commander's Handbook for Peace Operations*; (Building 96 Fenwick Road, Ft. Monroe, Virginia 23651-5000, 16 June 1997), V-1.

[24] FM 3.07, 6-1.

[25] Ibid., 6-11.

[26] William S. Cohen, *Report of the Quadrennial Defense Review* (Washington D.C.: U.S. Government Printing Office, May 1997), 8.

[27] William J. Clinton, *A National Security Strategy for a New Century*, (Washington, D.C., The White House, May 1997), 9.

[28] USAID from the American People, available from http://www.usaid.gov/our_work/humanitarian_assistance/disaster_assistance/; Internet, accessed 28 January 2008.

[29] USAID *Field Operations Guide for Disaster Assessment and Response, v 4.0* (Washington, D.C:, U.S. Government Printing Office, February 2005), xix.

[30] USAID from the American People, available from http://www.usaid.gov/our_work/humanitarian_assistance/disaster_assistance/resources/; Internet, accessed 28 January 2008.

[31] Nina M. Serafino, Martin A Weiss, *Peacekeeping and Post-Conflict Capabilities: The State Department's Office for Reconstruction and Stabilization Report for Congress*, (Congressional Research Service, The Library of Congress, Order Code RS22031, April 2005), 1.

[32] Andre Griekspoor and Steve Collins, *Raising Standards in Emergency Relief: How Useful are Sphere Standards for Minimum Humanitarian Assistance?* available from http://www.pubmedcentral.nih.gov/articlerender.fcgi?artid=1121289#id2730650; Internet, accessed 18 December 2007.

[33] Griekspoor and Collins, accessed 10 January 2008.

[34] James Daniels, "Operation Unified Assistance, Tsunami Transitions," *Military Review*, (Jan-Feb 2006): 51.

[35] United States Forces Command, "CINCFOR Hurricane Andrew After Action Report vol I," (Headquarters, Forces Command, Fort McPherson, Georgia, 30330, 20 November 1992), 4.

[36] Ibid., 4.

[37] FM 3-07, 6-10

[38] Ibid., 6-11

[39] United States Forces Command, "CINCFOR After Action Report vol II,"4.

[40] Ibid., 4.

[41] Jerold E. Brown, "*Humanitarian Operations in an Urban Environment: Hurricane Andrew, August – October 1992*," School of Advanced Military Studies Monograph, Command and General Staff College, Fort Leavenworth, Kansas, available from http://www-gsc.army.mil/carl/download/csipubs/Block/chp12_Block%20by%20Block.pdf; Internet, accessed 9 February 2008, 425.

[42] CINCFOR After Action Report,,15.

[43] Ibid.,15.

[44] Arn, 2.

[45] United States General Accounting Office, "Preliminary Observations on Hurricane Response," (Washington, D.C., U.S. General Accounting Office, February 2006); 4.

[46] "Port of Wilmington Welcomes USNS Peleliu with 82nd Airborne, 24th Marine Expeditionary Unit Cargo Back From Hurricane Relief", 7 October, 2005; available from http://www.ncports.com/web/ncports.nsf/pages/051007+Hurricane+Relief; Internet: accessed 16 December 2007.

[47] Donna Miles, “Military Leaders Describe Recovery Mission,” 3 September 2005; available from http://www.defenselink.mil/news/Sep2005/20050903_2609.html; Internet: accessed 16 December 2007.

[48] New York Times, Louisiana: Extension of Guard Watch in New Orleans; Associated Press, January 10, 2008.

[49] CALL Initial Impressions Report, 90.

[50] Ibid., 89.

[51] Ibid., 89.

[52] United States Army Center for Army Lessons Learned, “After Action Review MSJTF Wright, HQ 265th EN Bn, Marietta to CP Shelby to Lyman and return, DATES: 2 SEP 05-23 SEP 05,” (U.S. Army Center for Army Lessons Learned, 10 Meade Ave, Fort Leavenworth, KS 66027,) 1.

[53] Bruce A. Elleman, Ed., *Waves of Hope: The U.S. Navy’s Response to the Tsunami in Northern Indonesia* (Naval War College, Center for Naval Warfare Studies, Newport Papers Number 28, Newport Rhode Island, February 2007,) 6-7.

[54] Ibid., Appendix I.

[55] Ibid., 111.

[56] Ibid., Appendix I.

[57] Elleman, 89.

[58] PACOM AAR, “CSG Indonesia – Transition” AAR, revision 4, 31 March 2005; Powerpoint Briefing available from http://team.apan-info.net/QuickPlace/tsunami; Internet: accessed 08 February 2008, provided by Mr. Jim Long, PACOM Lessons Learned Specialist, slide 1.

[59] Daniels, 51.

[60] PACOM AAR, slide 1.

[61] Elleman, 88.

[62] Daniels, 51.

[63] Operation Unifed Assistance Tsunami Relief Information Exchange Portal, “CSF-CSG RFA Form” available from http://team.apan-info.net/QuickPlace/tsunami/PageLibrary0A256F7F000E4863.nsf/h_Toc/332D39D97656389F0A256F8900172461/?OpenDocument; Internet: accessed 08 February 2008, 1.

[64] Elleman, 93.

[65] PACOM AAR, slides 4-5.